Southern Polytechnic State University

Industrial Engineering Technology Department

Certificate in QUALITY PRINCIPLES

The primary objective of the *Certificate in Quality Principles* is to provide training and education to members of the Industrial Engineering field in quality system principles, methodology, elements and standards. Students can complete the requirements in 3– 4 semesters. These courses may also be applied toward completing a B.S. degree in Industrial Engineering technology upon acceptance to SPSU.

The certificate will be offered on campus, through distance learning, and over the Internet.

Admission Requirements:

Applicants must meet all undergraduate admission requirements.

Required Courses:

IET	2227	Industrial Statistics	3
IET	3334	Production and Inventory Control	3
IET	3339	Statistical Quality Control	3
IET	3401	Project Organization and Control	3
IET	3403	Industrial Experimentation	3
IET	3410	Principles of Team Dynamics	3
IET	4356	Quality Concepts and Systems Design	3
	TOTAL		20

NOTE: All prerequisite must be met to take a required course. Prerequisites are listed in the current SPSU undergraduate catalog.

Descriptions for required Courses:

IET 2227 Industrial Statistics 4-0-4

As a study of descriptive and inferential statistics and applied probability, the course includes measures of central tendency and variability, statistical sampling and estimation, standard probability distributions, introduction to hypothesis testing and nonparametric statistics. Industrial applications rather than theoretical developments are emphasized. Computer based solution techniques are used when appropriate.

IET 3334 Production and Inventory Control 3-0-3

The concept of a basic production and an inventory control system are central to this course. Material requirements planning and master production scheduling are covered. Inventory planning from outside vendors or internal production is considered. Various forecasting techniques are examined.

IET 3339 Statistical Quality Control 3-0-3

This is a study of the fundamentals of statistical quality control. Topics include statistical processes control with emphasis on applications and techniques including control charts for variables and attributes, and process capability. Other topics include scientific sampling fundamentals, acceptance sampling by attributes and variable, and reliability.

IET 3401 Project Organization and Control 2-2-3

A study of planning and controls methods for industrial and production projects, including Critical Path Methods (CPM) and Project evaluation and review technique (PERT). Topics include scheduling, updating and controlling with schedules, time - cost tradeoff, resource allocation cost control for projects, the roles of project personnel in project organizations, and post-planning control. Commercially available project planning software will be examined.

IET 3403 Industrial Experimentation 3-0-3

A review of basic statistics including descriptive statistics, sampling, estimation and hypothesis testing .A study of the methods of gathering, analyzing and presenting technical and engineering data. Topics include reliability, chi-squared contingency tables and goodness-of-fit test, one and two way ANOVA, regression analysis and design of the experiment. Computer based solution techniques are used where appropriate.

IET 3410 Principles of team dynamics 3-0-3

Students will learn the skills and techniques to succeed as a team member in the workplace. Topics include leadership and communicative skills social influences, decision making and problem solving techniques, and team development.

IET 4356 Quality Concepts and Systems Design 3-0-3

The course is a study of quality system principles, methodology, elements, and standards. Emphasis will be given to management, organization, creation, and evaluation of quality systems necessary to assure organizational and functional compliance with stated quality system requirements (of national and international standards, including the ISO/Q9000 series) and extensions thereof. Alternative quality systems are also explored, including more comprehensive Total Quality Systems.